

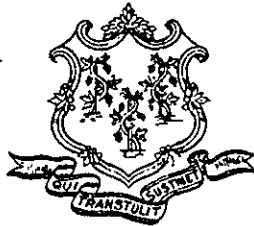
STATE OF CONNECTICUT

SECTION 406

HAZARD MITIGATION IMPLEMENTATION MEASURES

1985 Update

WILLIAM A. O'NEILL
GOVERNOR



STATE OF CONNECTICUT
EXECUTIVE CHAMBERS
HARTFORD

March 22, 1985

Mr. Henry G. Vickers
Regional Director
FEMA Region I
J. W. McCormack Post Office
and Courthouse
Boston, Massachusetts 02109

Dear Mr. Vickers:

The attached Hazard Mitigation Plan has been prepared pursuant to Major Disaster No. FEMA-711-DR-CT, as required by Section 406 of Public Law 93-288. The Plan, an update of the 1983 Plan, contains a review of actions taken under the former plan and includes an increase in the information from and for municipalities affected by recent flooding.

I am pleased to report that the state has completed forty-one work items from the 1983 plan, including significant improvements in flood control, dam safety, floodplain regulation, flood warning, flood preparedness, and flood hazard planning. Over thirteen million dollars (\$13,000,000) has been expended for and committed to flood damage prevention projects, and additional staff has been added to the state's flood related programs. The process of improving flood programs has been made easier by the excellent assistance my staff has received from FEMA, particularly from Jim Donovan in Region I and Pat Stahlschmidt and Larry Zensinger of the Washington staff.

This year's plan contains first and second priority items. As in the past, my office will oversee the first priority action items while second priority action items will be delegated to the Commissioner of the Department of Environmental Protection.

This plan represents my commitment to improve the state's mitigation programs. I believe you will find it in compliance with both the letter and intent of Section 406 requirements.

Sincerely,

A handwritten signature in dark ink, appearing to read "Will. A. O'Neill".

WILLIAM A. O'NEILL
Governor

SECTION 406

HAZARD MITIGATION IMPLEMENTATION MEASURES

State: Connecticut

Disaster: FEMA 711-DR-CT;

Storm of May 28 to June 2, 1984,
Flooding of May 28 to June 2, 1984

Report Date: March 1985

This Document Has Been Compiled And Edited By Allan Williams Of The
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- A. Authorities: Public Law 93-288, as amended
President's Executive Order 11988
Federal-State Disaster Assistance
Agreement No. FEMA 711-DR-CT
Titles 22a, 25, and 28 of the Connecticut General Statutes
- B. Purpose: To fulfill the requirements of the Federal-State Agreement for Federal Disaster Assistance FEMA 711-DR-CT to minimize long- and short-term flood hazards and to reduce the need for future disaster assistance.
- C. Scope: This report addresses hazard mitigation implementation for the entire state, with special attention to those areas which received the most severe losses in the May-June floods. This report is structured as per the outline of February 17, 1983, developed at the FEMA 406 Hazard Mitigation Planning Course.

TABLE OF CONTENTS

I.	Introduction.....	1
II.	Description of Event.....	1
	Precipitation May 28-June 2, 1984.....	1
	Stream Flow and Flood Control.....	4
	Location of Flood Prone Lands.....	5
	Reported Flood Damages.....	6
	Affect on Long-Term Employment and Business.....	6
	Affect on Agriculture.....	6
	Housing.....	9
III.	Flood Mitigation.....	10
	Flood Protection Activities, June 1982-January 1985.....	10
	Program and Administrative Actions.....	10
	Flood Control.....	11
	Statewide Automated Flood Warning System.....	12
	Preparedness Actions.....	12
	Dam Safety.....	12
	Total Funds.....	13
	1983 Mitigation Report Status.....	14
IV.	Municipal Activities.....	26
	Types of Actions Taken.....	26
	Municipal Questionnaire.....	28
	Responses from Municipal Questionnaire.....	30
V.	1985 Hazard Mitigation Team Recommendations.....	33
VI.	New Issues.....	37
VII.	1985 Section 406 Hazard Mitigation Implementation Measures.....	38
	Abbreviations.....	47

I. INTRODUCTION

The flooding of May 28-June 2, 1984 resulted in a Presidential Disaster Declaration. As in 1982, the reception of federal disaster funds has brought with it an obligation to review and correct flood problems. However, in recognition of the State's 1982-83 efforts, FEMA and the state have agreed the 1984-85 report will be limited to a) updating the status of the 1983 report recommendations, b) increasing attention to municipal problems, c) incorporating the federal Interagency Hazard Mitigation Team recommendations, and d) adding other issues as recommended.

II. DESCRIPTION OF EVENT

PRECIPITATION MAY 28-JUNE 2, 1984

The Northeast River Forecast Center recorded a low of 5.90 inches of rain at Bridgeport station (Stratford) and a high of 9.74 inches at Saugatuck Reservoir Station (Weston). In general the southeast portion of the state had between 6 and 8 inches, with the remainder of state averaging 8-9 inches. While the in-state precipitation was out of the ordinary, it was the widespread dispersal of rain throughout Massachusetts, New Hampshire and Vermont that caused basin wide flooding in the Connecticut, Farmington and Housatonic drainage basins. A generalized map of in-state precipitation is shown in Figure 1, and a generalized map of New England precipitation is shown in Figure 2.

STORM OF MAY 28 - JUNE 3 TOTAL PRECIPITATION IN CONNECTICUT, in inches

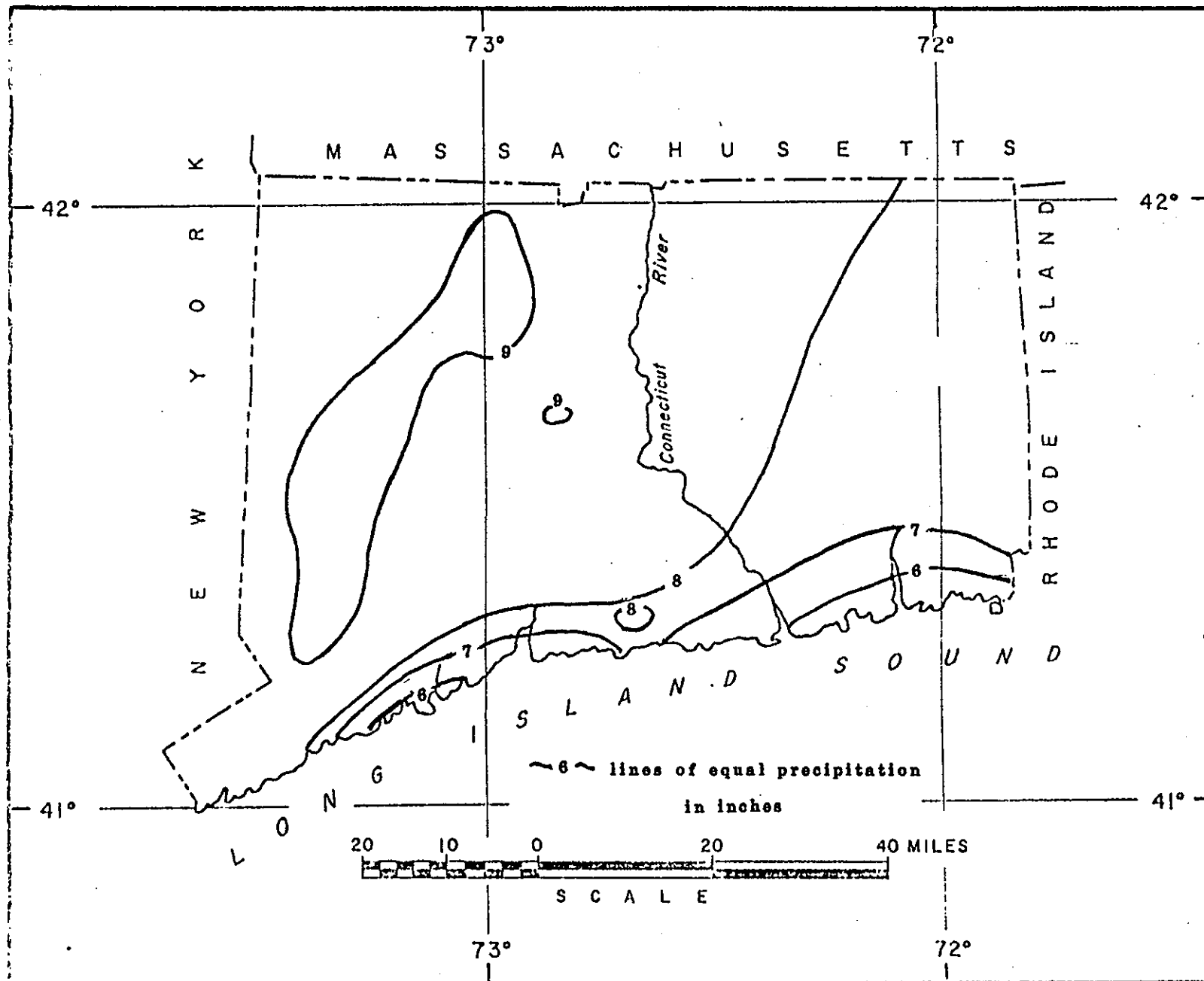
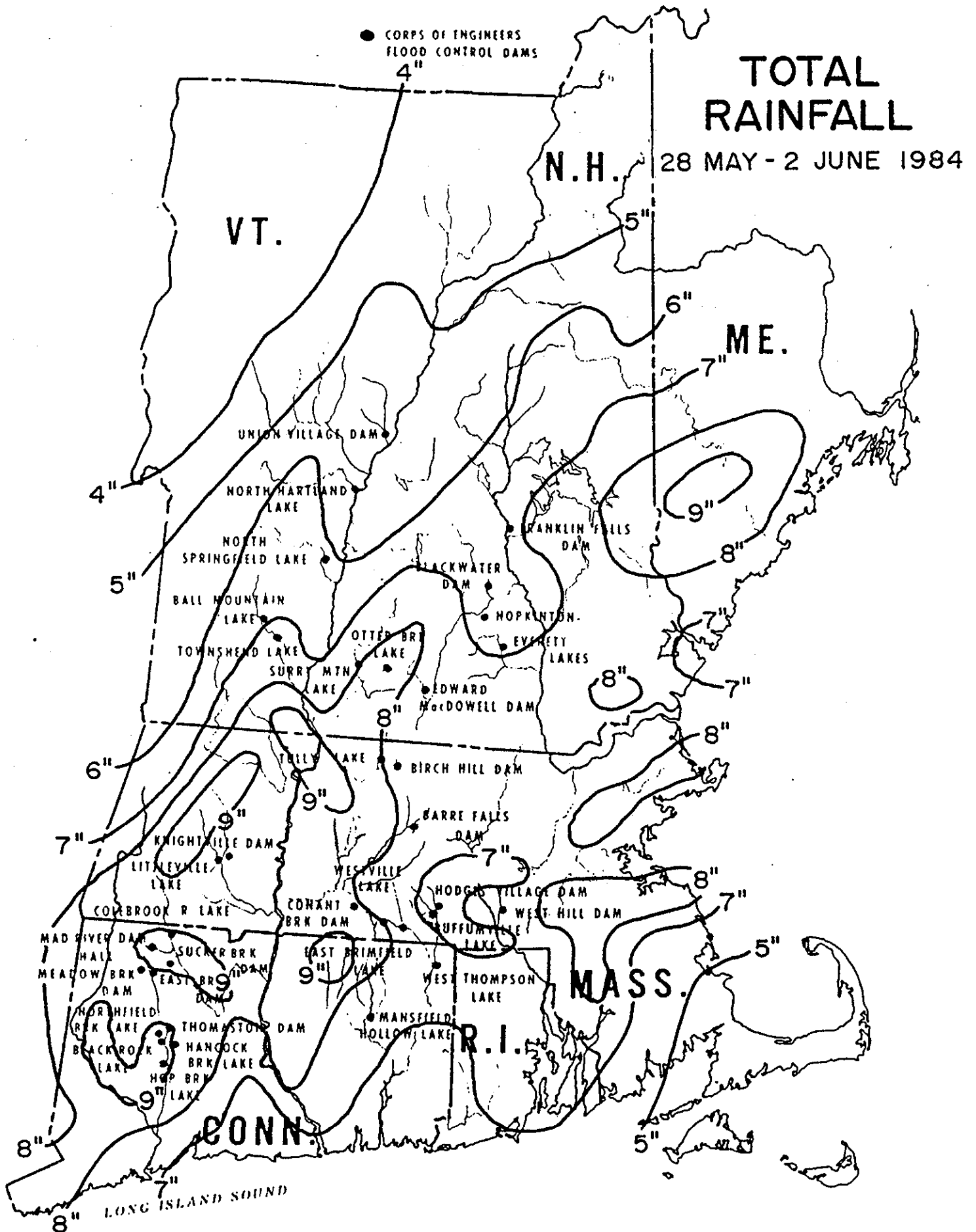


FIGURE 1

Prepared by the Natural Resources Center

FIGURE 2



ISOHYETES BY R. LAUTZENHEISER
STATE CLIMATOLOGIST
NEW ENGLAND CLIMATIC SERVICE

STREAM FLOW AND FLOOD CONTROL

The highest flows occurred in the Connecticut and Housatonic Rivers on May 31 and June 1. However, the floodwaters remained high for several days because of the large drainage areas involved. Flood protection structures prevented \$729,052,000 in damages throughout New England.

STREAM FLOW PEAKS*

R & LOCATION	DATE	PEAK FLOW (ft ³ /s)	Recurrence Interval (years) (No Storage Considered)
Housatonic River Mills Village, CT	5/31/84	21,100	70
Housatonic River Mylordsville, CT	5/31/84	34,000	35
Housatonic River Levenson, CT	5/31/84	63,500	25
Connecticut River Farmingtonville, CT	6/1/84	186,000	50
Connecticut River Meriden, CT	6/1/84	192,000	65
Connecticut River Meriden, CT	6/2/84	186,000	75

Source: U.S. Geological Survey "Water Resources Condition in Connecticut," June 1984.

The recurrence intervals are not the same throughout the basin due to the rainfall pattern and the location of flood control structures. The Housatonic has several large flood control structures in the lower part of its basin which buffered lower river flows. The Connecticut River on the other hand has most of its flood control projects in the upper part of the valley. The May-June 1984 storm was actually a larger storm, with a greater amount of runoff, than shown by the recurrence intervals. In the Connecticut River, for example, approximately 15% of the flow was detained at twenty-one flood

storage reservoirs in northern New England. Having 186,000 cfs at the Thompsonville guage means that there would have been close to 219,000 cfs at that same guage if the flood control reservoirs had not been built. While a 15% flow reduction may not appear to be significant, these structures resulted in \$347,246,000 in damage prevention throughout the five state Connecticut River Basin. In addition non-storage flood projects saved another \$381,808,000. Total flood damage reduction from flood control projects on the Connecticut River Basin was \$729,057,000. The Housatonic River Basin witnessed a smaller, but still sizable \$24,086,000 damage reduction and the Thames River Basin witnessed a \$21,295,000 reduction from its flood control works.

LOCATION OF FLOOD PRONE LANDS

Unlike the 1982 floods, the 1984 damages occurred along major interstate rivers and not along traditional flash flood tributaries. Accordingly, most damages occurred along the mainstem Connecticut and Housatonic Rivers. Major damage along the Thames did not occur because of lesser rainfall in the lower Thames River Basin and the effectiveness of the flood storage facilities in the upper basin.

REPORTED FLOOD DAMAGES

Figure 3 delineates the flood damages as reported in May and June, 1984, while Figure 4 designates the communities with the highest damages. Note, these are reported damages, and not actual damages as determined by flood relief and insurance claims. Such information is difficult to compile because of the large number of agencies and municipalities involved. In addition to losses reported by town, the state spent about \$1,600,000 for emergency response and recovery work.

The communities with the highest damages were requested by the Governor to respond to a questionnaire on municipal flood mitigation activities. The responses to that questionnaire are summarized in a later section.

AFFECT ON LONG TERM EMPLOYMENT AND BUSINESS

The Connecticut Labor Department reported about 85 firms, with a total of about 1,500 employees, were shut down for at least one day, and that 341 flood related unemployment claims had been filed. However, most businesses were re-opened within one week. Therefore, long term affect of the flood on business and unemployment appears to be minimal.

AFFECT ON AGRICULTURE

Because so much of the agricultural flood losses were in floodplains of major mainstem water courses, the 1984 floods were an unwelcome, but understandable occurrence. There were 119,450 acres within 1,222 farms affected; with total damages estimated at \$11,867,020. Crop damages are based on costs due to loss in yield, loss of fertilizers, cost of replanting, and loss in nutrient quality of forage crops. All such losses were not in

Figure 3

REPORTED FLOOD DAMAGES BY MUNICIPALITY MAY-JUNE 1984

Municipality	Private	Public	Total
1. Ansonia	0	\$ 50,000	\$ 50,000
2. Barkhamsted	0	11,500	11,500
3. Bridgewater	0	1,200	1,200
4. Brookfield	0	7,894	7,894
5. Canaan	\$ 200,000	5,000	205,000
6. Chester	620,000	53,500	673,500
7. Colchester	90,000	45,250	135,250
8. Coventry	0	13,000	13,000
9. Cromwell	6,100,000	0	6,100,000
10. Danbury	20,000	0	20,000
11. Deep River	550,000	7,300	557,300
12. Derby	83,000	3,000	86,000
13. East Haddam	28,000	5,000	33,000
14. East Hampton	5,300	5,000	10,300
15. East Hartford	500,000	20,000	520,000
16. East Windsor	515,000	268,000	783,000
17. Enfield	142,800	25,000	167,800
18. Essex	385,000	0	385,000
19. Easton	0	2,000	2,000
20. Fairfield	1,200	0	1,200
21. Farmington	0	25,000	25,000
22. Glastonbury	1,000,000	605,000	1,605,000
23. Haddam	93,000	0	93,000
24. Hamden	0	24,500	24,500
25. Hartford	0	208,045	208,045
26. Harwinton	0	1,000	1,000
27. Kent	69,000	20,000	89,000
28. Litchfield	0	10,000	10,000
29. Lyme	22,200	0	22,200
30. Middletown	2,075,000	1,433,600	3,508,600
31. New Hartford	0	10,000	10,000
32. New Milford	15,150,500	10,750	15,161,250
33. Newtown	350,000	22,570	372,570
34. North Canaan	1,000	10,000	11,000
35. Oxford	1,020,000	5,500	1,025,500
36. Portland	3,000,000	100,000	3,100,000
37. Rocky Hill	0	92,500	92,500
38. Salisbury	10,000	10,000	20,000
39. Seymour	75,000	0	75,000
40. Shelton	300,000	0	300,000
41. Simsbury	25,000	30,000	55,000
42. Somers	22,000	2,500	24,500
43. Southbury	0	15,794	15,794
44. South Windsor	139,550	90,000	229,550
45. Vernon	5,000	0	5,000
46. Watertown	50,000	400,000	450,000
47. Wethersfield	370,000	20,000	390,000
48. Windsor	235,000	7,000	242,000
49. Windsor Locks	615,000	2,000	617,000
TOTALS	\$ 33,867,550	\$3,678,403	\$ 37,545,953

Source: Connecticut Office of Civil Preparedness: Connecticut Damage Report, June 14, 1984.

Figure 4

COMMUNITIES WITH HIGHEST PUBLIC AND PRIVATE FLOOD DAMAGES

As Reported, June 1984

Public Damages (above \$100,000)

1)	Middletown	\$1,433,600
2)	Glastonbury	605,000
3)	Watertown	400,000
4)	East Windsor	268,000
5)	Hartford	208,045
6)	Portland	100,000

Private Damages (above \$300,000)

1)	New Milford	15,150,000
2)	Cromwell	6,100,000
3)	Portland	3,000,000
4)	Middletown	2,075,000
5)	Oxford	1,020,000
6)	Glastonbury	1,000,000
7)	Chester	620,000
8)	Windsor Locks	615,000
9)	East Hartford	500,000
10)	Essex	385,000
11)	Wethersfield	370,000
12)	Shelton	300,000

floodplains. There were also 17 shellfish operations that had a total of about \$120,000 in losses. The farmers who chose to farm such land are apparently aware of the flood risks, and choose to farm such lands because of their low slope and increased nutrient richness. The flooding is expected to have no long term negative impact on agriculture.

HOUSING

The Department of Housing reported 177 homes with major damage and 715 homes with minor damage. The estimated amount of residential damage was \$3,949,050. Temporary housing was provided for about 700 families, most of whom were back in their homes within one week of the flooding.

III. FLOOD MITIGATION

The state has conducted a considerable number of flood protection activities. These are shown a) in the following list; b) in a review of the implementation items within the 1983 406 report; c) in a review of the 1984 Hazard Mitigation Team Reports; and d) in the responses to a questionnaire mailed to municipalities.

FLOOD PROTECTION ACTIVITIES JUNE 1982-JANUARY 1985 (Not included in 1983, Section 406 report.)

The State of Connecticut has initiated or completed the following flood mitigation activities since the June 1982 floods.

A. Program and Administrative Actions

1. Creation of Computerized Dam Inventory for Connecticut's 3,000 dams
2. New Legislation Creating Standards for State Floodplain Management Activities Passed.
3. Dam Registration Regulations Promulgated.
4. Dam Inspection Regulations - first draft completed.
5. Stream Channel Encroachment Line Regulations - drafted and hearing held.
6. Dam Safety Conference Held.
7. Commercial and Industrial Flood Preparedness Conference held.
8. Dam Safety and Flood Control Programs Reorganized and New Staff Added After Increased Legislative Funding.
9. Planning Projects
 - a. Development and acceptance of statewide hazard mitigation plan.
 - b. Initiation of project to classify flood susceptibility in each of the state's 384 drainage basins.

- c. Completion of coastal flood susceptibility project.
 - d. Initiation of project to help coastal property owners improve their preparedness.
 - e. Initiation of project to evaluate flood vulnerability of all the state's treatment facilities.
10. Increased staff assigned to assisting municipalities with floodplain management activities.
- B. Flood Control, Beach and Shore Erosion Projects
- 1. Seymour - Steel Brook Project - construction completed.
 - 2. Hamden - Pardee Brook Project - completed.
 - 3. Bridgeport - Rooster River Project - Phase II construction nearly completed.
 - 4. Milford - Great Creek Project - final design initiated.
 - 5. Milford - Burwells/Farview Shore Project - final design initiated.
 - 6. New Haven - Morris Cove Project - under construction.
 - 7. Stratford - Point-No Point Project - completed.
 - 8. Stratford - Ferry Creek Project - State portion completed.
 - 9. Middlefield - Coginchaug River Project - under construction.
 - 10. West Haven - Birchwood Gardens Project - final design initiated.
 - 11. Bridgeport - Ox Brook Project - prepared for design.
 - 12. Bridgeport - Island Brook Project - final design initiated.
 - 13. New Haven/East Haven - Morris Creek - study nearly completed.
 - 14. Stamford - Rippowam River - Corps of Engineers study accepted.
 - 15. West Hartford - Trout Brook Soil Conservation Service Project - Construction completion expected in the fall of 1985.
 - 16. Hartford - Newfield Avenue Soil Conservation Service Project -

construction initiated.

17. Hartford/West Hartford - South Branch Park River SCS Cleanup Project - to be completed summer, 1985.
 18. Newington - Piper-Mill Brook Soil Conservation Service Project - design initiated.
 19. New Haven - West River Corps of Engineers Project - design initiated.
 20. Plainfield - Mill Horse Brook Soil Conservation Service Project - study completed.
 21. Plymouth - Upper Pequabuck River Project - discontinued.
 22. Central Coastal River Basin Study (about 15 towns) study completed.
 23. Connecticut River Basin Study - initiated.
 24. Norwich and Southington - Flood Warning System Project - funds appropriated.
- C. Statewide Automated Flood Warning System:
1. Riverine Precipitation Component - Out to bid.
 2. Coastal Component - Contract to be awarded for system design.
- D. Preparedness Actions
1. New State Sandbag Policy and Procedures issued.
 2. New guidance for municipal flood emergency planning issued.
- E. Dam Safety
1. State-Owned Dams Repaired:
 - a. Haddam - Higganum Dam - completed.
 - b. East Haddam - Leesville Dam - completed.
 - c. Middletown - Dooley Pond Dam - completed.
 - d. Litchfield - Northfield Pond Dam - completed.
 - e. E. Haddam - Bashan Lake Dam - completed.
 - f. Bolton - Lower Bolton Dam - completed.

- g. Bozrah - Gardner Lake Dam - completed.
- h. Watertown - Black Rock Dam - completed.
- i. Windham - Bibbins Dam - completed.
- j. Chester - Pattaconk Dam - construction completed.
- k. Lyme - Groton Pond - under construction.
- l. East Lyme - Pataguansett Dam - completed.
- m. Hamden - Butterworth Dam - construction initiated.
- n. Voluntown - Beach Dam - completed.
- o. Winchester - Park Pond Dam - construction completed.
- p. Winchester - Winchester Lake Dam - construction completed.

2. Private Dams

- a. 350 dams inspected
 - 70 private dams - repaired - completed at state request
 - 25 private dams - repairs - initiated at state request
 - 80 private dams in design for corrective actions
 - 40 private dams in preliminary design for corrective action
- b. - January 1984 to June 1984
 - 63 dam permit applications reviewed
 - 38 orders issued for repairs
 - 68 additional dam inspections made

F. TOTAL FUNDS INVOLVED*

<u>For Completed</u> <u>Projects</u>	<u>Projected and/or spent</u> <u>For Initiated Projects</u>	<u>Projected for</u> <u>Committed Projects</u>
\$ 4,239,000	\$2,989,000	\$6,540,000

*Note: All state dam repairs 100% state funded while flood control and shore erosion projects were from 1/3 to 2/3 state funded. Non-state share paid for by municipality, unless federal cost sharing noted.

G. 1983 MITIGATION REPORT STATUS

The Section 406 Hazard Mitigation Implementation Measures report for 1983 contains (from its index):

- a) a general description of the state
- b) a description of the flooding event of June, 1982
- c) the location of flood prone lands and potential flood vulnerability within the state
- d) an identification of flood problems
- e) an inventory of existing federal, state, regional, municipal and private mitigation measures
- f) a synopsis of past flood reports and analysis
- g) a series of recommendations to mitigate damages
- h) a cover letter from the Governor, endorsing the report, and its implementation measures

As noted earlier, rather than repeat the descriptions provided in the 1983 report, this report concentrates only on the changes that have occurred subsequent to that report. The following section outlines the 1985 recommendations and their status just over a year later.

The State has completed forty (40) items, initiated seventeen (17) others, revised or rescheduled fifteen (15) more, withdrawn eight (8), and taken no action only five (5) items. All items not completed or withdrawn are included in the new Hazard Mitigation Implementation Measures list in Section VII of this report.

STATUS REPORT

1983 SECTION 406 HAZARD MITIGATION IMPLEMENTATION MEASURES

As of January 1985

C = Completed
I = Initiated
R = Revised/Rescheduled
W = Withdrawn
N = No Action

<u>Action</u>	<u>Status</u>	<u>Comments</u>
<u>First Priority Actions:</u>		
<u>SHORT-TERM ACTIONS:</u>		
01-Prepare a State Statute on Flood Management to include the policies of E.O. 18; DEP's flood management policies; posting of flood zones; standards for state-sponsored road, bridge, culvert and building designs.	C	Section 25-68b, et seq., Connecticut General Statutes (Public Act 84-536).
02-Improve dam safety program (staff and personnel changes; repairs to state-owned dams). See also long-term actions.	C	Public Act 83-38. Public Act 84-452 also provides assistance to private dam owners.
03-Conduct a workshop for commercial and industrial property owners on flood preparedness.	C	
04-Streamline FEMA procedures for distribution of disaster funds in order to expedite disaster payments.	C	
05-Consider purchasing flood-plains as a priority for purchase of recreational land under Sec. 7-131d of the CGS.	I	Documentation must be provided to SCORP board before they change priorities.
06-Consider purchase of flood-plain farmland in purchase of farmland development rights under Sec. 22-36aa of the CGS.	I	Documentation must be provided to Farmland Preservation Advisory Committee before they change policies.

- | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|----------------------------------------------------------------------------------------------------------------------------------|
| 17-Investigate development of an automated flood warning system for all state-owned dams posing a significant threat to public safety. | I | Flood Warning System being developed. Dam Safety component to be added after initial equipment tested. |
| 18-Follow-up local actions delineated in the Hazard Mitigation Team Reports (15 and 90 day) and expedite feasibility studies for about two dozen towns with significant flood problems. | C | |
| 19-Inventory progress on these actions one year from the date of this report and report to the Governor's Office. | C | |
| LONG-TERM ACTIONS | | |
| 10-Draft legislation to require a standard for municipal road, culvert and bridge construction and reconstruction. | R | Coordination Committee to be established in 1985. Further study on issue recommended. |
| 11-Improve Dam Safety Program (repairs to state and privately owned dams; staffing of Dam Safety Program; improvement of monitoring and enforcement procedures). See also short term. | C | Public Act 83-38. |
| 12-Draft legislation for a state/local cost-sharing formula for disaster assistance to municipalities. | R | Further study needed on this issue before legislation can or should be suggested. |
| 13-Revise Emergency Operations Plans for all state agencies involved in responding to floods. | I | Will be done in accordance with IEMS when FEMA produces final guidelines. |
| 14-Work with local officials to help towns educate their citizens on the importance of flood insurance. | C | A significant increase in activities with municipalities has occurred, but much more needed. See new action items on this topic. |

5-Conduct a workshop or workshops on updating municipal emergency operations plans to include a flood element.

R

The Office of Civil Preparedness issued Advisory Bulletin 11-4 on this topic. Flood problem issues will be integrated into IEMS workshops as IEMS unfolds.

16-Develop flood management system on drainage basin basis. (Basins rated by potential for damage.)

C

17-Implement a pilot program for a statewide automated flood warning system.

I

First equipment expected to be installed late summer of 1985.

18-Incorporate long-term issues from 406 Report into Long-Range Water Resources Planning Program (mandated under Sec. 22a-352 of the CGS).

R

Long-range planning process delayed due to creation of statewide water resources task force (Special Act 82-28). However, a draft of the flood section is available.

Status of First Priority Action:

9	Completed
5	Initiated
4	Revised/Rescheduled
0	Withdraw
0	No Action

18

Second Priority Actions:

LEGISLATIVE AND REGULATION ACTIONS

- | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01-Draft legislation for protection of barrier beaches and coastal high hazard (V) zones. | C | Legislation was proposed in 1985, but unfavorably acted upon by General Assembly. |
| 02-Draft legislation to allow state/local cost-sharing assistance to farmers in the event of a disaster. Submit to legislature. | W | Discussions with Department of Agriculture indicate this is not feasible at this time. Note: The CT Dept. of Economic Development will provide low interest loans if no other sources of funds are available (see Sec. 16a-43 C.G.S.). |
| 03-Draft legislation to allow the Dept. of Housing to circumvent normal purchasing, contracting and hiring procedures in an emergency to facilitate the development of emergency MHP's and other aspects of the temporary housing program. | I | New plan has been proposed as part of disaster response package that has gone to FEMA for approval. |
| 04-Investigate the need for portable radios for intra- and inter-agency communications for DEP, DAS, State Police, Consumer Protection, and report to the legislature and the Governor. | W | Replaced by statewide communications study. |
| 05-Amend existing flood control legislation to require public hearings in order to determine the acceptance of proposed SCS P.L. 566 projects. | R | DEP is working with a watershed committee for P.L. 566 projects and will determine if this recommendations should be followed. |

EDUCATION

- | | | |
|---------------------------------------------------------------------------------------------------------|---|--------------------------------------------------|
| 06-Conduct Dam Safety Conference for owners of private dams. | C | |
| 07-Develop a professional public service announcement to explain flood hazards. | N | Combine with #9. |
| 08-Develop education programs for farmers with regard to insurance coverage in the event of a disaster. | R | Information to be mailed to farmers during 1985. |

- | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---|---------------------------------------------------------------------|
| 9-Prepare a short, public service announcement aimed at reducing deaths from recreational use of flood waters to be broadcast during and after flooding. | N | |
| 10-Improve distribution of brochures on all available disaster assistance programs. | C | Program guide now available for use at disaster assistance centers. |
| 11-Institute ongoing training for disaster programs within each state agency. (Note: FEMA has technical training for IFG and temporary housing programs.) | I | IEMS revisions should improve all state agency actions. |

PLANNING AND SPECIAL STUDIES

- | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-----------------------------------------------------------------------------------------------------------------------------------------|
| 12-Revise Statewide Water Supply Emergency Plan. | R | Water Supply Implementation Plan not updated. New state statute on water supply addresses these issues (Public Acts 84-502 and 84-281). |
| 13-Update State EOP in accordance with FEMA's new Integrated Emergency Mgt. System (IEMS) concept. | I | Waiting for IEMS guidelines/regulations. |
| 14-Complete preparation of operation and maintenance procedures for P.L. 566, Corps and state-owned dams; disseminate information to field staff and maintain central office copy. | C | Available from DEP/Water Resources Unit. |
| 15-Investigate the possibility of modifying existing or proposed flood control reservoirs for increased water supply storage. | C | Drought contingency plans completed or nearly complete for all six study areas. |
| 16-Prepare a flow chart delineating state agency responsibilities and places to get help, equipment, etc. | R | Will be part of IEMS revisions. |
| 17-Investigate the feasibility of using DEP district headquarters for departmental emergency operations centers. | W | Need for data only available in Hartford DEP offices preclude this. |

8-Provide sandbag guidance to towns and state agencies.	C	See Advisory Bulletin 11-4, Supplement 1B, revised, Office of Civil Preparedness.
9-Sponsor a study to document the need for crop insurance and lobby for its passage.	W	Preliminary survey indicates lack of need.
10-Require all owners of dams considered "major" to prepare E.O. plans and coordinate with local OCP.	C	Now required by administrative action.
11-Prepare municipal profiles of coastal flood susceptibility.	C	Available from DEP/Natural Resources Center.
22-Draft flood preparedness plans for all wastewater treatment facilities subject to flooding from inflow or stream flooding.	I	Report due in October of 1985; State/FEMA project.
23-Inventory all wastewater treatment facilities to determine flood susceptibility and for those susceptible, determine which can be cost-effectively floodproofed.	I	CE/State/FEMA project underway.
24-Develop schedule for implementation of floodproofing of water treatment facilities subject to inflow flooding by separation of sanitary and storm sewers and/or by installing by-pass equipment.	R	Will follow upon completion of above two projects.
25-Prepare a report on the effect of roof leaders on inundation of sewer plants.	C	Issue incorporated into infiltration reports being completed by most towns.
26-Amend the Statewide Long-Range Water Resources Management Plan to include the policy and program recommendations of this report.	R	See first priority action #18.
27-Inventory state buildings in flood zones and develop procedures for flood preparedness for flood-prone buildings.	R	Rescheduled for implementation in 1985.

COORDINATION

- | | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 28-Consult with representatives of the SBA to iron out difficulties caused by conflicting procedures which resulted in the inconvenient and costly extension of the IFG program. | C | Department of Income Maintenance: (1) revised guidelines, (2) used new FEMA Delta Process, and (3) suggested SBA report to deal with delays. |
| 29-Investigate separation of Public Assistance and Disaster Assistance Center staff coordination duties. | C | The CT Office of Policy and Management has provided additional DAC coordination and has separated public assistance and disaster assistance staff duties. |
| 30-Meet with State Police to discuss the availability and use of dam information. | C | Information relayed by mail, phone. Further activities on this topic will occur this year, and as needed. |
| 31-Work with the State Building Commission Standards Committee in an effort to incorporate NFIP standards into the Building Code. | R | It has been decided to reevaluate DEP procedures to determine if problems can be solved without amendment to the State Building Code. |
| 32-Brief other state agencies on flood management engineering criteria for state actions and E.O. 18. | W | Superseded by new state statute (see first priority action #1). |
| 33-Investigate the feasibility of co-locating the Water Resources Unit EOC with operations in the State Emergency Operations Center. | C | Investigation indicates that they cannot co-locate until DEP dam files are fully computerized and information accessible to other computers. |
| 34-Continue coordination meetings between DEP/CE/SCS; at least bi-annually. | C | |
| 35-Pursue the concept of a single disaster application. | C | DELTA in use in 1984. |
| 36-Revise Federal Damage Survey Reporting forms so that it is very clear that figures on forms are just estimates (print statement in red on front of forms). | I | New DSR due out in mid-1985. Also, efforts made to correct the problem with better communication to municipal officials. |
| 37-Consult with OPM (Public Assistance Coordinator) in establishing priorities for FEMA work areas. | C | State modified procedures in 1984 to correct the problem. |

38-Designate a damage report officer for all disaster and post-disaster damage reporting and disaster expenditures.

C

The Operations Section of OCP has been so designated.

39-Develop written guidelines for damage estimation to improve the accuracy of data and thoroughness of data. Implement training program for individuals who must make estimates.

I

Revised in November of 1982 but scheduled for revision this year.

FUNDING

40-Develop disaster contingency fund which allows state agencies to deficit spend to cover agency administrative and operational costs incurred in disaster response which are not federally recoverable.

R

Issue to be studied and recommendation made by OPM.

41-Continue and increase funding for State Assistance Program.

C

Funding did increase but program to end this fiscal year.

42-Prepare a report for the Governor and State Legislature on the need for funds for increased maintenance and repair of civil preparedness communication equipment and replacement of obsolete equipment.

C

OCP received additional test equipment; new weather teletype; new maintenance parts and equipment.

43-Renegotiate increases in EMA or DPI funding to include more funds for planning guidance to towns.

W

EMA cannot be increased; DPI may be increased; both relate to IEMS future.

44-Initiate a sandbag replenishment program.

C

45-Reinstitute free sandbag program and institute sandbag filler machine program.

C

46-The State Emergency Operations Center badly needs additional space for official press conferences and media briefings during times of emergency.

C New briefing room constructed.

47-Request an increase in funding for extension of the SCELPA and flood and erosion-control projects.

C New stream channel lines prepared in several communities and approximately 13 million dollars has been made available for flood control and beach and shore erosion projects.

48-Conduct a survey of equipment needs for the State Police for use in establishing a field command post and for communication equipment and include a request for such equipment in FY '84-85 budget.

N Recommendation to be remade this year.

STAFFING

49-Document the need for additional staff in Emergency Services Unit of the State Police and make recommendations for required increases.

N Recommendation to be remade this year.

50-Increase OCP planning staff to allow the agency to pay greater attention to natural hazards and improve agency capability in responding to disasters.

I Two positions filled; need additional staff.

51-Identify DEP staff training requirements and prepare a plan to meet those needs, including alternative funding sources for staff training.

W Folded into other training programs.

52-Delineate need for additional staff for operations and maintenance of state-owned flood-control structures.

C New crew hired.

POLICY AND PROGRAM

- | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 53-Consider both shoreline erosion and flood-control measures when designing either erosion or flood-control projects. | C | New CAM guidelines; used for first time within past year. |
| 54-Consider measures to reduce the visual impact from SCS emergency work, including repairs for channels, culverts, and bank stabilization programs. | C | Emergency work may at times leave a stream in a condition not aesthetically similar to pre-flood conditions. Restoration of aesthetics is the responsibility of the municipality. |
| 55-Implement existing FEMA policy to provide orientation for DAC staff. | C | |
| 56-Promote flood insurance purchase. | I | In part being addressed by second priority action #21 above, but additional work needed as in actions #7 and #9 above. |
| 57-Issue state policy statement to require automated flood warning system for all new flood and erosion control projects. | C | Issued 4/7/83 by Commissioner Pac. |
| 58-Update computerized dam information at an established frequency. | C | Updated to present. |
| 59-Pursue implementation of the recommendations of the post-flood dam safety report. | C | |
| 60-Develop policy for evaluating exemptions from the State Building Code in flood hazard areas. | N | |
| 61-Make provision for implementation of the Sec. 1362 study done by CAM in 1981. | W | Considered infeasible at this time. |
| 62-Incorporate the policy of the state to acquire flood-prone lands using Sec. 1362 funds into the Long-Range Water Resources Management Planning Program. | R | See first priority action #18. |

53-Pursue adoption of Stream Channel Encroachment Line Regulations.	I	Regulations drafted but new hearings may be required.
54-Upgrade the Norwalk River, Route 7 flood-control project to priority status.	I	Project faces serious obstacles and will need special attention in the next year.
65-Consult and develop better local enforcement of NFIP requirements.	C	State conducted 24 community assistance and program evaluations ("Capes") for FEMA.
66-Develop a municipal outreach program to encourage towns to upgrade their stream crossing standards.	R	Incorporate into first priority action #10.
67-Inventory progress on these action items one year from the date of this report and report to the Governor's Office.	C	

Status of Second Priority Action:

32	Completed
11	Initiated
11	Revised/Rescheduled
8	Withdrawn
5	No Action
<u>67</u>	

Status of All Actions:

41	Completed
16	Initiated
15	Revised/Rescheduled
8	Withdrawn
5	No Action
<u>85</u>	

IV. MUNICIPALITIES

MUNICIPAL ACTIONS - POST-DISASTER 1984

As noted earlier, a questionnaire was sent to each of 15 communities who reported significant flood losses in the 1984 storm. Responses were received from 14 of those communities and are summarized below. Many of the municipalities conducted mitigative actions, a sampling of which are noted here.

TYPES OF ACTIONS TAKEN

- Chester - Made changes in sewer pump stations and sewer system to prevent infiltration.
- Cromwell - Maintained a moderate supply of sandbags and pump.
- East
Hartford - Instituted a revised, expanded early flood warning system using cable television and house-to-house canvassing.
- East Windsor - Relocated equipment and designed floodproofing for the sewer plant.
- Essex - Revised predictive indices to upgrade emergency measure response time.
- Revamped communication network with flood specific communications.
- Glastonbury - Reduction measures still under consideration.
- Hartford - Upgraded administrative and operating procedures.
- Repaired inspection road on top of dike.
- Erected fencing to prevent sightseers and 4-wheelers from cruising the dike.
- Planning repairs and improvements for flood monitoring of Park River and its pumping stations.
- Planning to determine adequacy of North and South Meadows drainage area facilities.
- Middletown - Initiated request to study flood protection for Washington Street (Route 66) merchants.

New Milford - Looking into better warning system.

Oxford - Cleaned channels where necessary.
 Contacted SCS concerning flood control project possibility.

Portland - Enforced zoning regulations in floodplain areas.

Windsor
Locks - Increased back-up materials; reviewed Civil Preparedness plan
 and added a marine officer for river patrol.

Municipal Questionnaire

Fourteen of fifteen communities surveyed responded to the post-flood questionnaire of October 22, 1984. Their responses are summarized here. Note that because only a limited number of municipalities were queried, it would be difficult to extrapolate the trends over the entire state. Nevertheless, when combined with observations from state and federal flood protection programs, some conclusions can be made.

- o Most communities (7) believe a pre- and post-disaster mitigation team would be useful. This corresponds with a national trend for such state teams.

- o Most communities (12) believe there were no improper reconstruction activities within their region.

- o Most communities (11) thought warning time was sufficient. There were some noted exceptions (see Figure 5), but in general flooding along the interstate river systems (Connecticut, Housatonic, Thames) is forecasted better because of the long lag time between the rainfall and the arrival of run-off into our state.

- o When asked if more government controls were needed for reconstruction activities, about half said yes (6). There is apparently a general feeling the State or federal government should exert more pressure in the reconstruction phase, possibly due to the difficulty of enforcing regulations when there is a strong community voice to just rebuild things as they were.

- o Less than half (6) of the municipalities indicated they have a stormwater management plan, but most seemed cognizant of the need for such plans. Most indicated that financing was the biggest problem.

- o Most communities (3) initiated improvements for their flood management programs. Most changes related to the mainstem river areas flooded in 1984. Flash flood problems were generally not addressed by most communities.

COMMENTS FROM THE MUNICIPALITIES (Responses to questionnaire of 10/22/84).

<u>TOWN</u>	<u>ISSUE</u>	<u>RESOLUTION</u>
CHESTER	1) Excellent early warning.	Comment will be referred to Northeast River Forecast Center.
	2) Stormwater management required on a subdivision basis, but a town wide plan is constrained by the budget.	The community would be likely to find it cost effective if it completed a storm water management plan prior to problem development. The DEP is hoping to develop stormwater guidelines by 1986.
	3) Would like to clear stream beds of debris and soils.	Comment will be referred to USDA SCS for possible assistance.
	4) Need more care in allowing stream/river front development.	The DEP has increased its community monitoring, and technical assistance activities; municipalities must review their land-use practices and/or adopt adopt a stream protection program.
CROMWELL	5) Hazard mitigation work should be done prior to the next flood.	This report will recommend formation of a pre and post disaster hazard mitigation team to assist municipalities.
	6) Need funds if floodproofing or relocations are to occur.	State and municipalities need to conduct a pilot project to show that floodproofing and relocation can work. It's possible some state or federal funds may be available if such a pilot is successful.
	7) Warnings were vague. "Crest predictions should be given to the town at least twice daily."	Comment will be referred to National Weather Service, Northwest River Forecast Center.
	8) Municipal, state and local [regulations or enforcement] needed to "prevent construction below defined levels without being floodproofed. [Need] Financial help for property owners to accomplish this goal."	See items #4 and #6.
	9) Financial considerations constrain community from preparing a stormwater management plan.	
	10) Regional committees should be formed to make damage prevention plans; legislation should then be passed to fund enactment of these plans.	Good idea, which will be more easily implementable when state promulgates statewide flood management classification by drainage basins.

	11) Reconstruction of Rte. 72 and new construction of Rte. 72 is occurring below 100 year flood levels.	Comment will be referred to Water Resources Unit.
EAST HARTFORD	12) It would be helpful to have state staff assistance at the time of flooding and recovery.	See item #5.
	13) We build all facilities to the 100 year standard without need for federal or state standards.	Noted.
	14) The only action that would significantly reduce our losses would be to extend the dike to those areas of our town currently unprotected.	East Hartford rejected the dike extension raising options several years ago. Does it wish to consider?
E. WINDSOR	15) Stormwater plan not prepared because mainstem Connecticut River is the problem.	Noted. However, E. Windsor may use this opportunity to look at its non-mainstem flooding and drainage problems.
ESSEX	16) A hazard analysis team that operated prior to a flood would be more useful.	See item #5.
	17) Need river depth bench marks for the Essex area.	The state is investigating a coastal tidal flood warning network, which should address the issue.
GLASTONBURY	18) Need an administrative team which can cut through the bureaucratic red tape to allow quick action on problems.	Red tape in projects has been cut significantly. Most delays are not caused by paperwork procedures, but either by problems that must be worked out, or by federal and state regulations designed to prevent abuse of disaster funds.
	19) Better communications on releases from upstream dams would be helpful.	Comment will be referred to U.S. Army Corps of Engineers, Northeast River Forecast Center and DEP/Water Resources Unit.
HARTFORD	20) Warning was sufficient, but data from River Forecast Center was not updated often enough to provide good planning basis.	Comment will be referred to Northeast River Forecast Center.
	21) Cost of construction and maintenance constrains improvements to storm water management system.	Hartford has the most extensive and expensive flood control works in the State: suggest formation of a state-local operation and maintenance study committee to address this issue.
	22) The following program changes are needed.	

	a) Improved state funding for maintenance of existing flood management systems.	See item #21.
	b) Improved availability to technical assistance to supplement Hartford's engineering expertise.	Comment will be referred to Water Resources unit.
	c) Improved training of flood management personnel in vulnerable communities.	Comment will be referred to Water Resources Unit.
	d) Integrating design of State flood monitoring system with municipal and Federal systems now in place.	Task will be recommended for action as new state system is implemented.
	23) The State could provide a valuable service by providing close liaison to and coordination with Army Corps of Engineers and Soil Conservation Service (USDA).	Comment will be referred to Water Resources Unit and Office of Civil Preparedness.
	a) [Need] Coordination [with downstream communities] of let-down of reservoirs and flood control dams.	Comment will be referred to Office of Civil Preparedness, Water Resources Unit, Army Corps of Engineers and Northeast River Forecast Center.
	b) Consulting services for flood control system management and maintenance.	Comment will be referred to Water Resources Unit.
	c) Provide updated flood designs and projections as development and improvements to storm water systems cause higher and higher runoff rates.	Comment will be referred to Water Resources Unit.
MIDDLETOWN	24) Additional assistance [would be welcome] at time of flooding, especially if funds for municipality increase.	See item #5.
	25) An evaluation of existing culverts and ranking of culverts as to priority [for replacement] needs to be done.	Middletown should investigate initiation of a new stormwater management plan.
NEW MILFORD	26) Residential flood warning needs to be improved.	Suggest interface with new statewide automated flood warning system.
	27) Need strict enforcement of floodplain construction.	See item #4.
OXFORD	28) It would be helpful to have state staff assistance at the time of flooding and recovery.	See item #5.
	29) There is no urban development [no stormwater plan needed?].	Perhaps this is a good time to consider a stormwater plan, so that new development does not cause flood losses and

	30) Unlikely that preventative measures for the 100 year flood could be cost-effective.	stream habitat degradation. Noted.
SHELTON	31) Some residents claimed not enough warning was provided by Northeast Utilities before the Stevenson Dam flow gates were opened.	Comment will be referred to Northeast Utilities; suggest interface with statewide automated flood warning network.
	32) Northeast Utilities should contact State Police [When there is flooding].	Comment will be referred to Northeast Utilities (as above).
	33) Enforcement of Flood Insurance regulations and ordinances; and floodproofing of existing homes are needed.	See items #4 and #6.
WETHERSFIELD	34) A hazard mitigation team may not be of any real value to us for another 1984 flood. [Mainstem Connecticut River].	Noted. Such a team may be useful for other flooding problems.
	35) River reports should be given with a standard reference datum.	Comment will be referred to Northeast River Forecast Center.
	36) Reconstruction controls should come from outside the municipality.	See item #4.
	37) Stormwater management plan needs to be updated, but funds for it are limited.	See item #2.
	38) Overreliance on property tax means municipalities cannot fill the gap [left by federal pullback].	Noted.
WINDSOR LOCKS	39) Present system of warning and control has kept losses to a minimum.	Comment will be referred to Northeast River Forecast Center.

Note: Editorial comments in brackets [].

V. 1984 INTERAGENCY HAZARD MITIGATION TEAM RECOMMENDATIONS

Each federal agency responding to a declared disaster appoints a representative to this team. The team is required to make recommendations to reduce future disaster losses caused by improper post-disaster reconstruction or other actions.

- A. 1. "An Emergency Operations Plan shall be developed for each of the critical wastewater treatment facilities."
2. "These EOPs [should] be incorporated into the Detailed Operations and Maintenance Manual . . . for each facility . . ."
3. "That each plant operator know what flood stage forecast impacts their location."
4. "That the state automated warning system be extended to include wastewater treatment and utility operations."
5. "That each facility owner(s) be advised of all insurance options and requirements under the NFIP and/or private companies."
6. "That potential funding sources for mitigation measures . . . [be] determined for each facility."
7. "That the EPA and the State of Connecticut develop and sponsor formal training for municipal wastewater treatment facility owner operators . . ."

Of the above seven recommendations, the State is addressing all, except 6 and 7, in a study it is now conducting. Supported by a grant from FEMA, the study will evaluate the flood vulnerability of all 85 of the state's treatment facilities; and it will make recommendations for corrective actions. The U.S. Army Corps of Engineers is assisting with this project as well, conducting damage assessments that will allow us to make some cost-benefit agreements for or against changes to the facilities.

As a result of the state treatment facility study, scheduled for completion by October 1, 1985, the state will be in a better position to seek corrective actions and necessary funding for those actions. The need for

special flood preparedness training for plant owners and operators should also be determined at the conclusion of the state study.

B. The agricultural recommendations include:

1. acquisition for open space or non-agricultural use.
2. developing crop planning measures.
3. purchasing crop insurance.
4. mapping potential agricultural easements.
5. mapping areas not to be reclaimed in the event of flooding.
6. satisfying sections of the 406 related to agricultural lands.

The purchasing of crop insurance (#3) will be promoted by the Connecticut Department of Agriculture, and the 406 elements (#6) are addressed elsewhere. Mapping areas not to be reclaimed (#5) and acquisition for non-agricultural use (#1) are likely to be as noted in the state's comments to the 90-day report; counter-productive to the goal of protecting the state's farmlands. It is also unlikely that crop planning (#2) needs significant study because there are too few major flood events to cause a change in normal crop planning procedures. If flooding becomes a recurrent problem, the farmer is likely to change his crop planning without need for outside intervention.

Mapping potential easements, however, is a project that may be looked into soon. The Department of Agriculture will be obtaining a list of farmland potentially suitable for purchase of development rights. From that list, DEP will assist the Department of Agriculture with identification of those important farmlands that are within floodplains. The DEP may indicate those that would be most beneficial for floodplain protection, and, hence, should be protected by whatever means.

C. The 15- and 90-day reports note that we should use "Small Cities" grants for mitigation activities. However, as noted in an earlier correspondence to FEMA, few, if any, activities qualify for such grants. In fact, the one request submitted, by the Town of Southington, was denied despite support from DEP. The project did not meet federal eligibility requirements. It might be suggested that if a federal team, such as the Interagency Flood Hazard Mitigation is to suggest use of federal funds, that a representative of the funding agency be part of the process. This would ensure commitment of funds for such a project.

D. The interagency team suggested ten areas in which to concentrate in preparing the new 406 report.

1. Recommendations

- a) Enforcement of NFIP policies and standards.
- b) Wastewater treatment facilities.
- c) Agricultural losses.
- d) Relationship between 406 and IEMS [integrated emergency management system developed by FEMA].
- e) Drainage basin classification and planning.
- f) Acquisition of floodprone lands.
- g) Municipal outreach.
- h) Stream Channel Encroachment Line extensions.
- i) Notification of controlled releases.
- j) Funding sources for implementation of mitigation measures.

2. Actions

- a) The state has increased its "Community Assistance and Program Evaluations".
- b) A project is underway to address treatment facility issue.

- c) Issues addressed (see new action items).
- d) 406 and IEMS activities integrated by OCP.
- e) Study project completed, adoption process to be initiated.
- f) To be addressed in 406 actions items.
- g) 1) Initiated request for pre-disaster planning grant,
2) questionnaire sent to municipalities (see Section IV of this report), 3) more engineering assistance, and 4) development of flood warning system.
- h) DEP will be revising Encroachment Lines in Norwalk; no other lines planned.
- i) State is working with private utilities to improve flood warning system.
- j) Have applied for and received grants for three projects; have applied for a fourth grant which is pending.

E. The Hazard Mitigation Team's recommendations for actions by the USDA and USACE are not addressed here. Such actions are monitored entirely by the interagency team. The state has no oversight requirement or jurisdiction for federal agency actions.

VI. NEW ISSUES

A. The state has developed a flood classification by drainage basin. This classification ranks subregional drainage basins by the degree to which they are flood prone. In addition, the state has developed a basin strategy report form that should be completed in concert with the affected municipalities. Both the classification system and the strategy report forms need to be formally adopted and implemented by the state.

B. As a condition of receiving federal disaster funds, the state must complete a Section 406 report such as this one. To make the disaster reduction measures more successful, the municipalities should be asked to provide similar post-disaster mitigation.

C. There is presently no manual or automated cataloging of permitted and unpermitted flood regulatory activities, and there is a need for monitoring unregulated land-use changes that may affect flood heights. Consequently, there is need to develop a system, preferably automated, for storage, manipulation and retrieval of land-use changes affecting flood heights. Such information is needed by both the flood regulatory and flood management programs at all levels of government and by the private development sector as well.

VII. SECTION 406 HAZARD MITIGATION IMPLEMENTATION MEASURES

The following section delineates the issues the state will address in fulfillment of its requirements under Section 406 of Public Law 93-288.

Those items listed as first priority will be overseen directly by the Governor's Office. All other items will be coordinated by the Department of Environmental Protection.

Included in this listing are all issues unresolved from the 1983 Section 406 report, plus issues identified in this year's efforts.

NEW

Section 406 Hazard Mitigation Implementation Measures

January 1985

Issue	Lead Agency	Funding Possibilities	Schedule (FY)	*Costs/ *Benefits	Comments
<u>First Priority Measures</u>					
1) Implement development of riverine component of the statewide automated flood warning system (ASERT) and pilot municipal system (ALERT).	Multi Agency DEP	- SCS - CT Bonding Commission - Private - Municipality	1985- 1996	*\$2.3 million over 10 years *Damage prevention \$50-175 million depending on number of municipalities participating	State Costs = \$416,000 over 10 yrs.
2) Investigate feasibility of developing a coastal flood monitoring and warning network.	DEP	FEMA	1985 & 1986	*\$30,000 *Begin addressing billion dollar coastal loss potential	
3) Hire staff to run automated warning system and to encourage more towns to join.	DEP/OCP	- Gen. Funds - Private Contributions	1985- 1996	*\$30-40,000/yr. *Necessary for the effectiveness of the system	Probably one person
4) Investigate alternative funding sources for ASERT and ALERT operation and maintenance.	DEP/BSET	Existing Staff ¹	1985 & 1986	*Minimal costs *Reduce public costs	
5) Prepare a report for the Committee on Automated Flood Warning on the feasibility of and procedures for developing a dam safety component of ASERT/ALERT.	DEP	Proposed Staff	1986	*Minimal costs *Necessary for dam safety	Contingent on implementation of ASERT and hiring ASERT/ALERT staff

¹When "existing staff" are noted in this report, they are subject to staff becoming available.

Issue	Lead Agency	Funding Possibilities	Schedule (FY)	*Costs/ *Benefits	Comments
<u>First Priority Measures (Continued)</u>					
6) Survey municipalities to determine their culvert and bridge standards.	DOT/OPM/DEP	Existing Staff	1986	*Minimal costs *Necessary to determine adequacy of state and municipal standards	If survey indicates a need for statewide guidelines or standards, this should be initiated.
7) Prepare statewide stormwater management standards.	DEP	Gen. Assembly Bonding	1986 & 1987	*\$12,000 *Prevent increases in flood damage	
8) Revise Emergency Operations Plans for all state agencies responding to floods.	OCP and all agencies	Existing Staff	1986-1988	*Minimal staff costs *Improved emergency response	Contingent on publication of New Basin and Natural Disasters Plan
9) Provide flood emergency operation planning guidance to municipalities.	OCP	Existing Staff	1985-1988	*Minimal staff costs *Improve municipal flood preparedness	
10) Develop a professional public service announcement to explain flood hazards.	DEP/OCP	Federal/State/Private	1986 & 1987	*Costs unknown *Reduce flood deaths and damages	For use at time of flooding
11) Promote crop insurance.	DAG	Existing Staff	1985 &	*Minimal costs 1986	*Reduce farmer losses
12) Revise State Emergency Operations Plan accordingly.	OCP	Existing Staff	1985 to 1987	*Minimal costs *Improve state disaster response	

Issue	Lead Agency	Funding Possibilities	Schedule (FY)	*Costs/ *Benefits	Comments
<u>First Priority Measures (Continued)</u>					
13) Prepare vulnerability assessment of all waste water treatment facilities.	DEP	CE	1985 & 1986	*\$30,000 *Determine need for modifications to such facilities	
14) Make recommendations for flood proofing those waste water treatment facilities which are subject to severe flooding and can be cost-beneficially protected.	DEP	General Funds SCS EPA CE	1986-1991	*Unknown *Reduce damage at treatment facilities	Contingent upon feasibility, noted in previous recommendation
15) Determine if state building code should be amended to incorporate all National Flood Insurance Program standards.	DEP/SBC	Existing Staff	1985 & 1986	*Minimal costs *Incorporation of NFIP Standards in Building Code would improve enforcement	
16) Maintain civil preparedness planning staff for natural hazards.	OCP/OPM/CGA	General	1985-1990	*2-3 Positions *Maintain the state's improvements in disaster response	In light of Federal budget cuts
17) Develop policy for evaluating exemptions from state building code in flood hazard areas.	DEP	Existing Staff	1985 & 1986	*Minimal costs *Provide standards and consistency in evaluating	
18) Norwalk Route 7 flood control project should be implemented.	DOT/DEP	General Assembly	ASAP	*Unknown *Reduce significant dollar damage exemptions	

Issue	Lead Agency	Funding Possibilities	Schedule (FY)	*Costs/ *Benefits	Comments
<u>First Priority Measures (Continued)</u>					
19) Submit application to FEMA for pre-disaster municipal planning.	DEP	Existing Staff	1985	*Minimal *Obtain municipal pre-disaster planning	
20) Improve the timeliness and accuracy of notification of releases from out-of-state flood control dams to downstream abutters.	DEP/CE/OCP/RFC	Existing Staff	1985-on	*Minimal costs *Increase preparedness and reduce flood fighting problems	
21) Report progress in those actions to the governor one year from the date of this report.	Governor's Office DEP	Existing Staff	June 1986	*Minimal costs *Determine progress of actions	

Issue	Lead Agency	Funding Possibilities	Schedule (FY)	*Costs/ *Benefits	Comments
<u>Second Priority Measures</u>					
1) Document the need for protection of floodplains as a priority for purchase of recreational land under Section 7-131d of the CGS and if documentation acceptable, change policy.	DEP	Existing Staff ¹	1986	*Minimal costs *Assist State in purchasing floodplain when purchasing open space	
2) Document need for protection of floodplain farmland to Agriculture Land Preservation Board.	DEP	Existing Staff	1986	*Minimal costs *Allow state to buy floodplain farmland when purchasing development rights	
3) Prepare a report analyzing optimum non-federal cost-sharing arrangement related to presidentially declared disasters.	DEP	Existing Staff Special Grant	1986	*Minimal staff costs *Potential long-term reduction in disaster costs	
4) Incorporate appropriate issues from this report into state's long-range water planning program.	Health/DEP/ OPM	Existing Staff	1986 & 1987	*Minimal staff costs	
5) Prepare a report on the protection by legislation or otherwise of barrier beaches and coastal high hazard (V) zones.	DEP	Existing Staff	1986	*Minimal costs *Document the need for protection	
6) Inventory state buildings in flood zones.	DEP	Existing Staff	1985 & 1986	*Minimal costs *Determine susceptibility of State buildings to flood losses	

¹When "existing staff" are noted in this report, they are subject to staff becoming available.

Issue	Lead Agency	Funding Possibilities	Schedule (FY)	*Costs/ *Benefits	Comments
<u>Second Priority Measures (Continued)</u>					
7) Brief state agencies on the arguments of P.A. 84-536.	DEP	Existing Staff	1985 & 1986	*Minimal costs *Improved enforcement of the act	*An Act Concerning Flood Management for State Agencies"
8) Conduct a survey of equipment needs for the state police for use in establishing a field command post and for communication equipment.	SP	Existing Staff	1985 & 1986	*Minimal costs *Determination of adequacy of existing system	
9) Document the need for additional staff in the Emergency Services Unit of the State Police and make recommendations for required increases.	SP	Existing Staff	1985 & 1986	*Minimal costs *Determination of adequacy of Emergency Services staffing	
10) Promote flood insurance purchase	DEP	Existing Staff	1985 & 1986	*Minimal costs *Decrease disaster losses to individuals	
11) Adopt stream channel encroachment line regulations.	DEP	Existing Staff	1985 & 1986	*Minimal costs *Provide standards and consistency in evaluating permit applications	
12) Prepare and adopt regulations for new "Act Concerning Flood Management for State Agencies" (Section 25-68b et seq.).	DEP	Existing Staff Bonding Grants	1986 & 1987	*Unknown *Provide standards and consistency in evaluating state actions	

Issue	Lead Agency	Funding Possibilities	Schedule (FY)	*Costs/ *Benefits	Comments
<u>Second Priority Measures (Continued)</u>					
13) If a municipal pre-disaster grant is approved, oversee grant to ensure product produced within FEMA guidelines.	DEP	Existing Staff	1985 & 1986	*Minimal costs *Ensure project meets state and federal requirements	
14) Create a state hazard mitigation team to assist community with pre- and post-disaster floodplain construction/reconstruction.	DEP	Existing Staff General	1985, 1986-on	*Minimal costs *Long-term reduction in flood losses	
15) While delays and processing requirements have been reduced, there is still some dissatisfaction with individual payment times. It is recommended that a report be written noting what changes, if any, can reduce the time for SBA loan payments.	SBA	Unknown	1985-1987	*Unknown *Identify weaknesses and strengths of current payment program	100% federal action - no state priority listed
16) Prepare guidelines for in-state dam owners for release of water during or prior to flood events.	DEP	Existing Staff	1985 & 1986	*Minimal costs *Increase flood storage and dam safety before storms	
17) Initiate statewide operation and maintenance study to look into municipal O & M problems relating to flood control work.	DEP	Existing Staff General Grant	1985-1987	*Minimal costs *Determine the readiness of municipal flood control projects	
18) State should more closely monitor pre- and post-disaster construction/reconstruction to ensure compliance with state and federal floodplain regulations.	DEP	Existing Staff	1985-on	*Minimal costs *Ensure compliance with proper standards	This could be made easier by formation of State Hazard Mitigation Team

Issue	Lead Agency	Funding Possibilities	Schedule (FY)	*Costs/ *Benefits	Comments
<u>Second Priority Measures (Continued)</u>					
19) Assist the Department of Agriculture in ranking floodplain farmland that should be protected.	DEP/DAG	Existing Staff	1985 & 1986	*Minimal costs *Assist the process of protecting floodplain farmland	
20) Formally adopt the flood classification by drainage basin system and incorporate it into the decision-making process.	DEP	Existing Staff	1985 & 1986	*Minimal costs *This would help cap future increases in flood losses	
21) Prepare a report outlining the process for implementation of strategy reports for each subregional basin in the state with high flood vulnerability.	DEP	Existing Staff	1985-1988	*Minimal costs *Minimize future increases in flood losses	
22) Prepare a report for the governor's review that will evaluate whether municipalities should be required to implement recommendations of appropriate basin strategy reports; or in their absence, prepare a municipal hazard mitigation report.	DEP	Existing Staff Grant	1986	*Minimal costs *Determine if municipalities should do hazard mitigation plans	Contingent upon completion of 40 and 41 above
23) Investigate feasibility to develop an automated system to store, manipulate and retrieve information by drainage basins on land-use changes affecting flood heights.	DEP	General Federal Grants	1985-1987	*Unknown *Determine feasibility to automating flood calculation information	

ABBREVIATIONS

ASERT	Automated Statewide Evaluation in Real Time (Statewide Flood Warning System)
ALERT	Automated Local Evaluation in Real Time (Municipal Flood Warning System)
BSET	Bureau of Statewide Emergency Telecommunications
CE	U.S. Army Corps of Engineers
CGA	Connecticut General Assembly
DAC	Disaster Assistance Center
DAG	Connecticut Department of Agriculture
DELTA	FEMA Code name for test project to reduce payment delays
DEP	Connecticut Department of Environmental Protection
DOT	Connecticut Department of Transportation
DPI	Disaster Planning Assistance from FEMA
EMA	Emergency Management Assistance from FEMA
EOC	Emergency Operations Center
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
IEMS	Integrated Emergency Management System
IFG	Individual and Family Grant Program
NFIP	National Flood Insurance Program
OCP	Connecticut Office of Civil Preparedness
OPM	Connecticut Office of Policy and Management
RFC	National Weather Service, Northeast River Forecast Center
SBA	U.S. Small Business Administration
SBC	Connecticut State Building Commission
SCELP	Connecticut Stream Channel Encroachment Line Program
SCS	USDA, Soil Conservation Service
SP	Connecticut State Police